

## CLAIMS

We claim:

1 1. A method for controlling an insect population comprising the step of administering an  
2 insecticidally effective amount of a composition comprising at least one viable Gram negative  
3 bacteria, dead Gram negative bacteria, extracts of a Gram negative bacteria, or a mixture or  
4 combination thereof, where the amount of Gram negative bacteria, alive or dead, or the extracts, are  
5 deleterious to an insect population or when ingested by an insect, result in insect death.

1 2. The method of claim 1, wherein the Gram negative bacteria are selected from the group  
2 consisting of: Purple Phototrophic Bacteria; Nitrifying Bacteria; Sulfur- and Iron-Oxidizing Bacteria;  
3 Hydrogen-Oxidizing Bacteria, Methanotrophs and Methylophs, Acetic Acid Bacteria  
4 (Acetobacteraceae), Free-Living Aerobic Nitrogen-Fixing Bacteria, *Neisseria*, *Chromobacterium*,  
5 and Relatives, *Vibrio* and *Photobacterium*, Rickettsias, Spirilla, Sheathed Proteobacteria, Budding  
6 and Prosthecate/Stalked Bacteria, Gliding Myxobacteria, Sulfate- and Sulfur-Reducing Bacteria and  
7 mixtures or combinations thereof.

1 3. The method of claim 1, wherein the insects comprise cockroaches, fire ants, carpenter ants,  
2 or termites and the composition.

1 4. The method of claim 1, wherein the Gram negative bacteria is a species selected from the  
2 genus *Rhodobacter*.

1 5. The method of claim 1, wherein the species is *Rhodobacter capsulatus*.

1 6. The method of claim 1, wherein the extract includes at least an endotoxin produced by the  
2 Gram negative bacteria.

1 7. The method of claim 1, wherein the Gram negative bacteria is dead.

1 8. The method of claim 1, further comprising periodically administering the composition.

1 9. The method of claim 1, wherein the effective amount of the composition comprises from  
2 about  $5 \times 10^9$  to about  $1 \times 10^{13}$  bacteria or the extract is derived from a composition comprising from  
3 about  $5 \times 10^9$  to about  $1 \times 10^{13}$  bacteria.

1 10. A method for controlling an insect population comprising the step of administering an  
2 insecticidally effective amount of a composition comprising a food stuff and at least one viable Gram  
3 negative bacteria, dead Gram negative bacteria, extracts of a Gram negative bacteria, or a mixture  
4 or combination thereof, where the amount is of Gram negative bacteria, alive or dead, or the extracts,  
5 result in insect death.

1 11. The method of claim 10, wherein the insects comprise cockroaches, fire ants, carpenter ants,  
2 or termites.

1 12. The method of claim 10, wherein the Gram negative bacteria is a species selected from the  
2 genus *Rhodobacter*.

1 13. The method of claim 10, wherein the species is *Rhodobacter capsulatus*.

1 14. The method of claim 13, wherein the bacteria is dead.

1 15. The method of claim 10, wherein the extract includes at least an endotoxin produced by the  
2 Gram negative bacteria.

1 16. The method of claim 13, wherein the food stuff comprises a carbohydrate.

1 17. The method of claim 16, wherein the insects are cockroaches or fire ants.

1 18. The method of claim 13, wherein the food stuff comprises a cellulosic material.

1 19. The method of claim 16, wherein the insects are carpenter ants or termites.

- 1        20.     The method of claim 10, further comprising periodically administering the composition.
- 1        21.     The method of claim 10, wherein the effective amount of the composition comprises from  
2        about  $5 \times 10^9$  to about  $1 \times 10^{13}$  bacteria or the extract is derived from a composition comprising from  
3        about  $5 \times 10^9$  to about  $1 \times 10^{13}$  bacteria.
- 1        22.     The method of claim 17, wherein the insect is fire ants, the effective amount is about 5 grams  
2        of the composition per mound and the 5 grams of the composition includes from about  $5 \times 10^9$  to  
3        about  $1 \times 10^{13}$  bacteria.
- 1        23.     A composition for controlling an insect population including an insect food and at least one  
2        Gram negative bacteria from the genus *Rhodobacter*.
- 1        24.     The composition of claim 23, wherein the insects comprise cockroaches, fire ants, carpenter  
2        ants, or termites.
- 1        25.     The composition of claim 23, wherein the Gram negative bacteria is a species selected from  
2        the genus *Rhodobacter*.
- 1        26.     The composition of claim 23, wherein the species is *Rhodobacter capsulatus*.
- 1        27.     The composition of claim 26, wherein the bacteria is dead.
- 1        28.     The composition of claim 23, wherein the extract includes at least an endotoxin produced by  
2        the Gram negative bacteria.
- 1        29.     The composition of claim 26, wherein the food stuff comprises a carbohydrate.
- 1        30.     The composition of claim 29, wherein the insects are cockroaches or fire ants.

- 1 31. The composition of claim 26, wherein the food stuff comprises a cellulosic material.
- 1 32. The composition of claim 31, wherein the insects are carpenter ants or termites.
- 1 33. The composition of claim 23, wherein the effective amount of the composition comprises  
2 from about  $5 \times 10^9$  to about  $1 \times 10^{13}$  bacteria or the extract is derived from a composition comprising  
3 from about  $5 \times 10^9$  to about  $1 \times 10^{13}$  bacteria.
- 1 34. The composition of claim 30, wherein the insect is fire ants, the effective amount is about  
2 5 grams of the composition per mound and the 5 grams of the composition includes from about 5  
3  $\times 10^9$  to about  $1 \times 10^{13}$  bacteria.